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SENSINT

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PHOTOGRAPHIC INTELLIGENCE REPORT

MISSILE FACILITIES IN THE MOSCOW AREA

CIA/RR PL-2

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CENTRAL INTELLIGENCE AGENCY
OFFICE OF RESEARCH AND REPORTS

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FOREWORD

Additional photography has been received which has permitted some refinements of the analysis presented in the previous report, CIA/RR PL-1.

Although the conclusions of the previous report have not been substantially altered, it is felt that there is enough additional information to warrant a second report at this time.

25X1D No photography has been received of a later date than [REDACTED] except the ground photos of the "Yo-Yo" bunker at Site No. 9 near Borsino. The latest aerial photography received covered only Sites No. 1, 3, 7, and 14. No additional coverage has been received for Sites No. 4, 6, and 8.

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I. SUMMARY AND CONCLUSIONS

This report is supplementary to CIA/RR PL-1, "Missile Launching Sites in the Moscow Area," published on 28 October 1955. It is based primarily on SENSINT photography, most of which is vertical or near-vertical, of poor to good quality. Site No. 14, which was not discussed in the first report, has been definitely located. Photography of this site is TOP SECRET. Aerial photography at the SECRET level is available for Sites 4, 6, 7, and 8. Ground photography at the SECRET level has been obtained of the "Yo-Yo" bunkers at Sites 9 and 61.

The two most important features of the supplemental report concern the "Yo-Yo" bunker, which is shown in better detail on the current photography, and the missiles, which were not seen on previous photography.

Most of the conclusions advanced in the first report remain unchanged, but all are listed below for the convenience of the reader.

A. SITE DISPERSION

1. The eight* missile launching sites in the Moscow area which have been precisely and positively located fall on arcs of two concentric circles centered approximately on the Kremlin.

2. The inner ring is on a radius of 46-51 kilometers (km), which is equal to 28.5-31.5 statute miles (sm) or 25-27.5 nautical miles (nm).

3. The outer ring is on a radius of 81-86 km (50-53 sm or 44-46.5 nm).

4. There are approximately 60 sites around Moscow. This is predicated on the assumption that the spacing observed to date, i.e., a 15 degree separation of sites on the inner ring and a 10 degree separation on the outer ring, is constant. If so, there would be 24 sites on the inner ring (12.5 km apart) and 36 on the outer ring (15 km apart).

* Includes Site No. 14, which was not discussed in the first report.

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B. "YO-YO" BUNKER AREA

1. There is something contained within the large bunker, in addition to the "Yo-Yo" equipment, which is of sufficient size to require a significant portion of one side of the bunker. A cable scar leads from the apron in front of this equipment directly to the mast which has been referred to as the "bore-sight pole."
2. As stated in the previous report, there are four dark areas in front of the "Yo-Yo" bunker. The significance of these areas is unknown, but some observations regarding them are listed in the appropriate section of this report.
3. There are at least three stick masts associated with the "Yo-Yo" bunker, one at each of the front corners, near the "Yo-Yo" equipment, and the other at the rear near the drive-in entrance. Whip antennae are probably mounted at the top of these masts.*
4. The rear entrance of the "Yo-Yo" bunker is large enough to admit a fairly large truck.
5. The "Yo-Yo" bunker area is completely enclosed by both single and double fences.
6. The top of the "bore-sight pole" is at an angle [REDACTED] from the top of the "Yo-Yo" bunker, [REDACTED] from the apron in front of the bunker. 25X1D
25X1D
7. The horizontal "Yo-Yo" is elevated at an angle of about 35° in one emplacement, and at an angle of about 45° at another. At Sites #1 and 3 the vertical "Yo-Yo" is not in evidence.

C. LAUNCHING SITE

1. The "Yo-Yo" bunker is always located on the Moscow side of the launching area.
2. The launching bays are always on the Moscow side of the transverse roads.
3. Deviations in site layout are attributable to natural and cultural features. Deviations from this norm do occur, as evidenced in Site No. 7, where two bays have been omitted due to adverse terrain, and

* Whip antennae can definitely be seen on the two masts which are visible in the ground photography of Site No. 9 (Borsino).

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and on Site No. 4, where six launching bays have been omitted, apparently for the same reason.

4. Each complex has ten launching area bunkers. Six launching bays are usually associated with each bunker, making a normal total of sixty launching bays for each site.*

5. Design of the various launching areas gives an impression of two military requirements: expeditious missile handling and multiple (possibly rifle) firing.

D. ASSEMBLY AREA

1. There is an area near a peat bog south of Istra which may be a facility for missiles.

2. Missile-like objects are stored in the open in several rows. The objects in some of the rows appear to be about [REDACTED] while in other rows they appear to be about [REDACTED]

25X1D

25X1D

3. These missile-like objects are about [REDACTED] They have fins at the rear and may also have smaller fins at the front section.

25X1D

4. There is a spur track into the area served by a main line railroad nearby.

5. There is a thermal-electric plant within the area which may use peat for fuel.

6. The area covers about 380 acres and contains more than 60 buildings with a total of more than 850,000 square feet of floor space. All but two or three of the buildings are single story.

E. GENERAL

1. There are at least three major components of each complex; the "Yo-Yo" bunker area, the launching area, and the administrative area.

2. An imaginary line drawn along the center road of the launching area passes through the "Yo-Yo" bunker and extends on to Moscow. Such

* For deviations from this norm, see Site No. 4 and Site No. 7.

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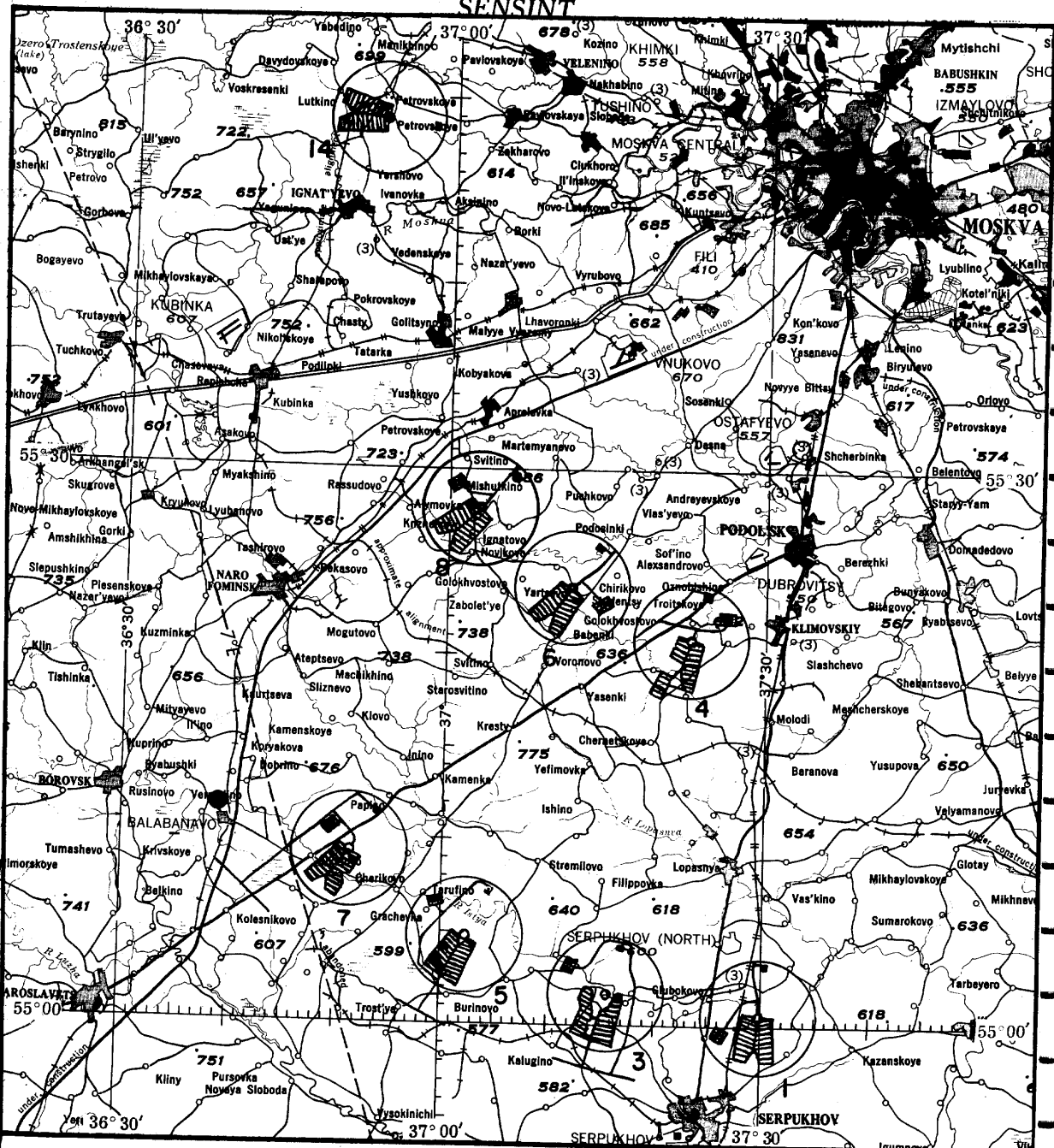
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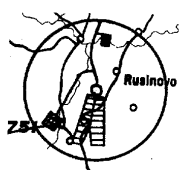
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MISSILE SITES COFIRMED BY AERIAL PHOTOGRAPHY

○ Center of Site located by Coordinates



Enlarged Inset (Site sketch not to scale)

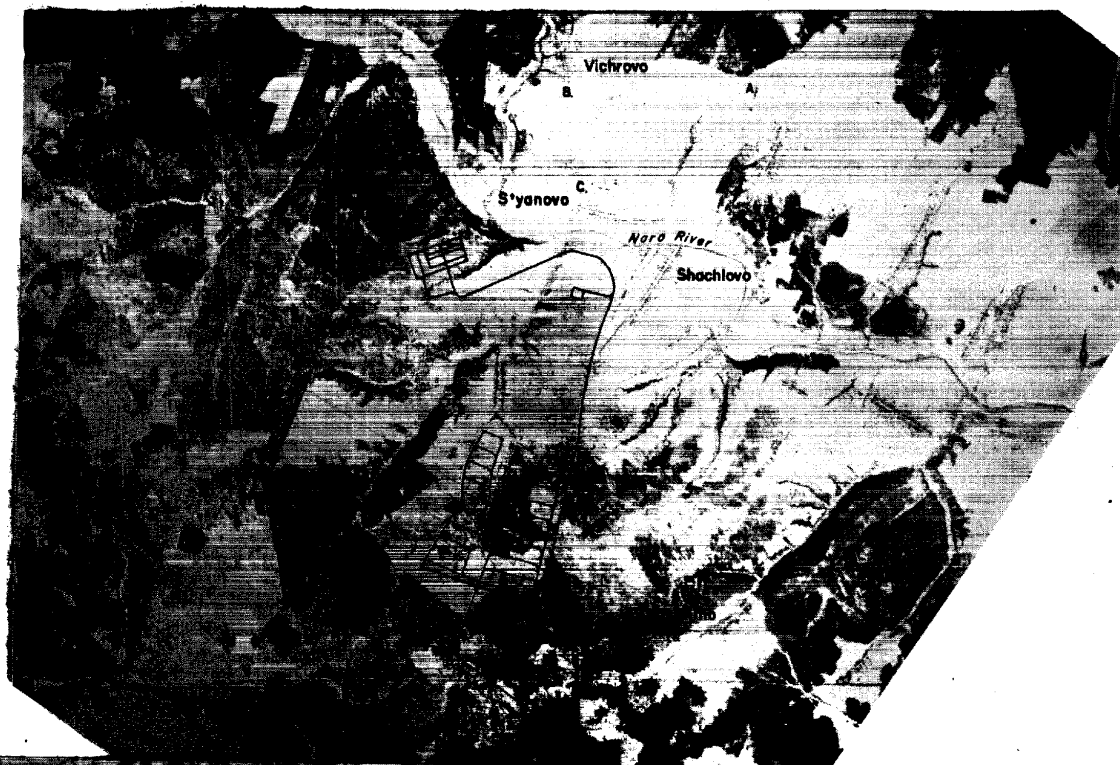
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Site No. 3



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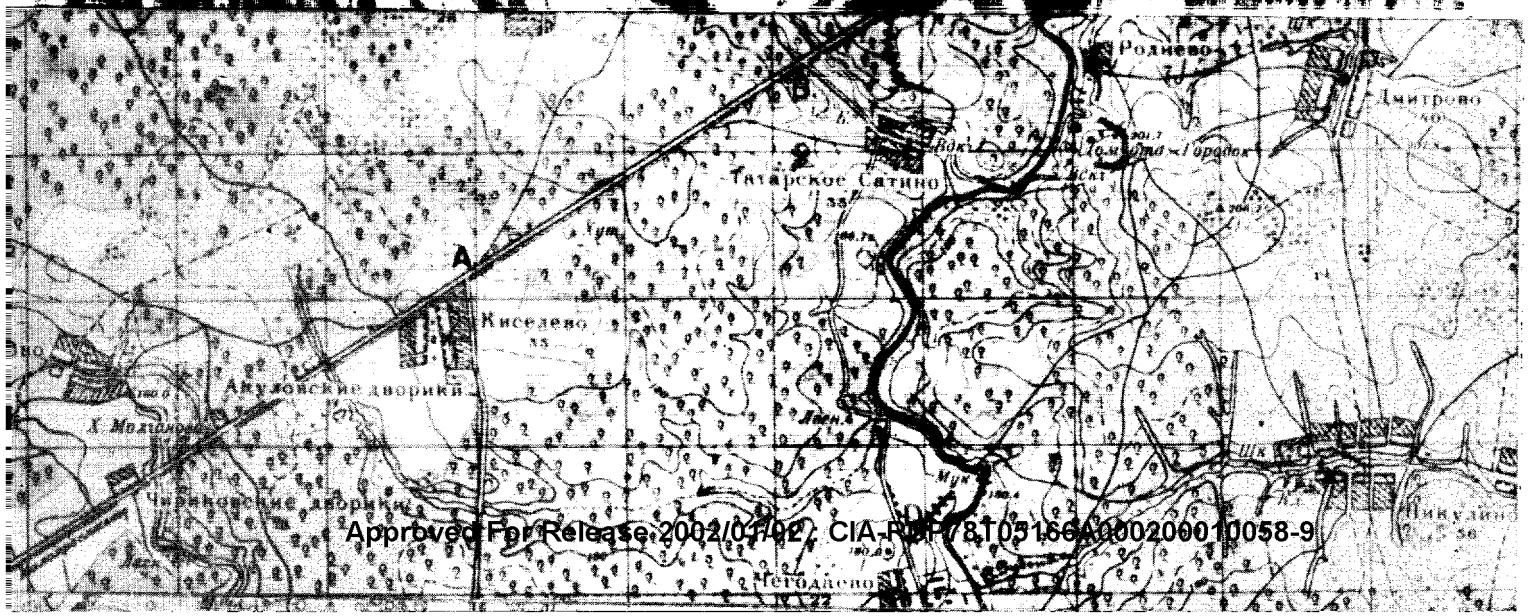
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Site No. 4



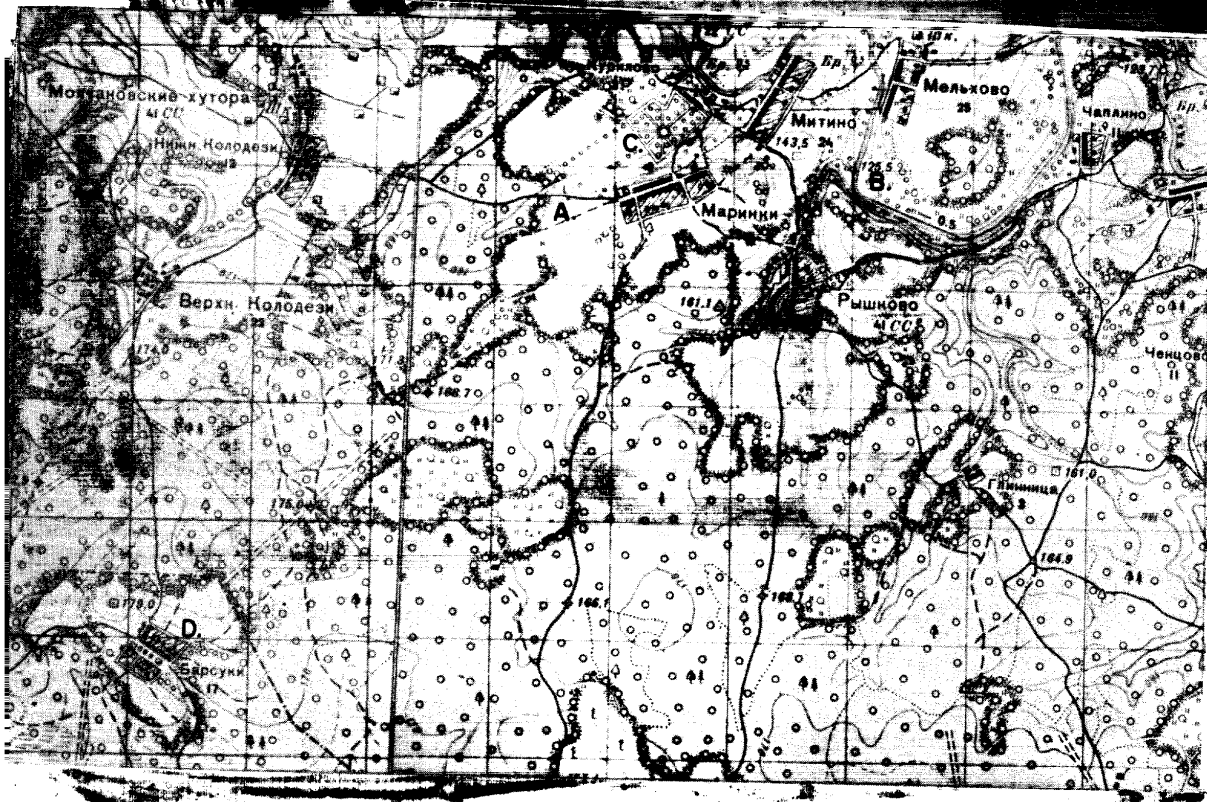
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Site No. 5



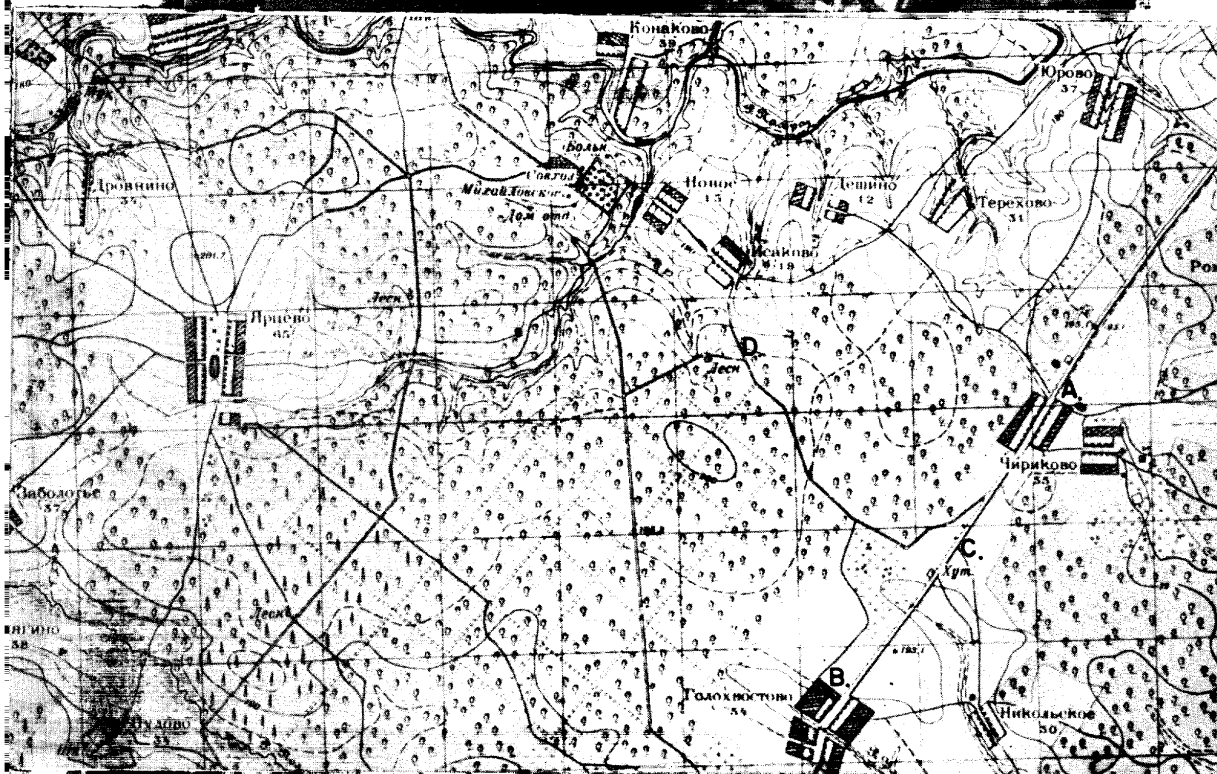
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Site No. 6



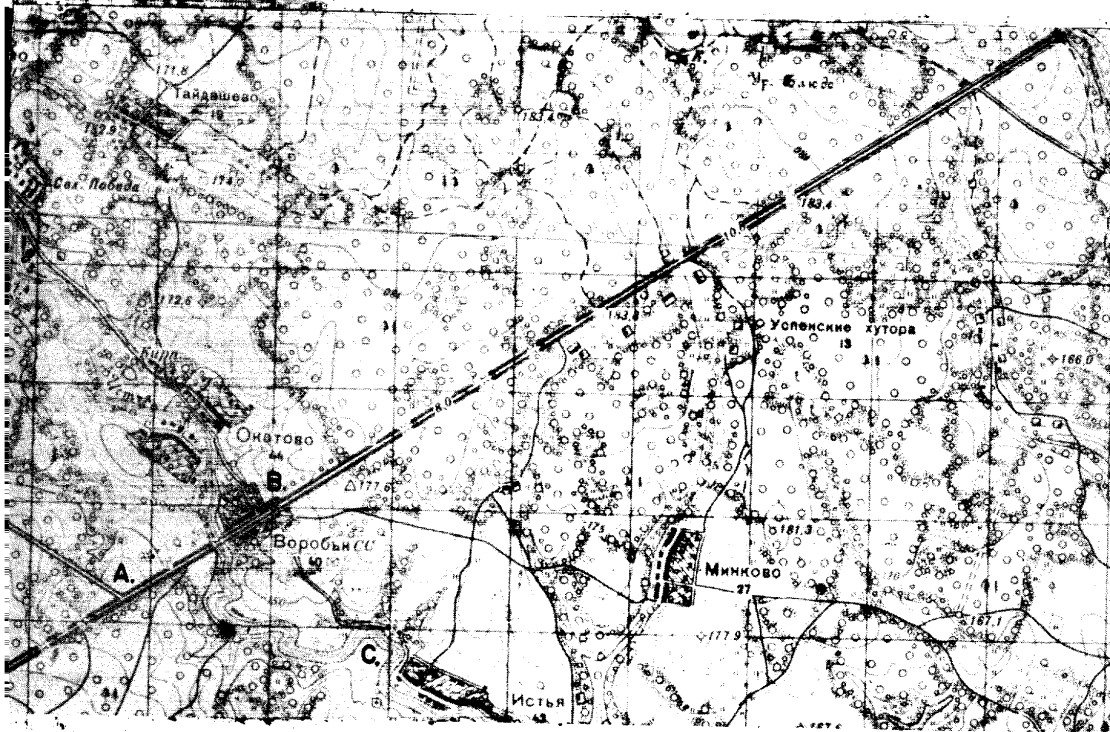
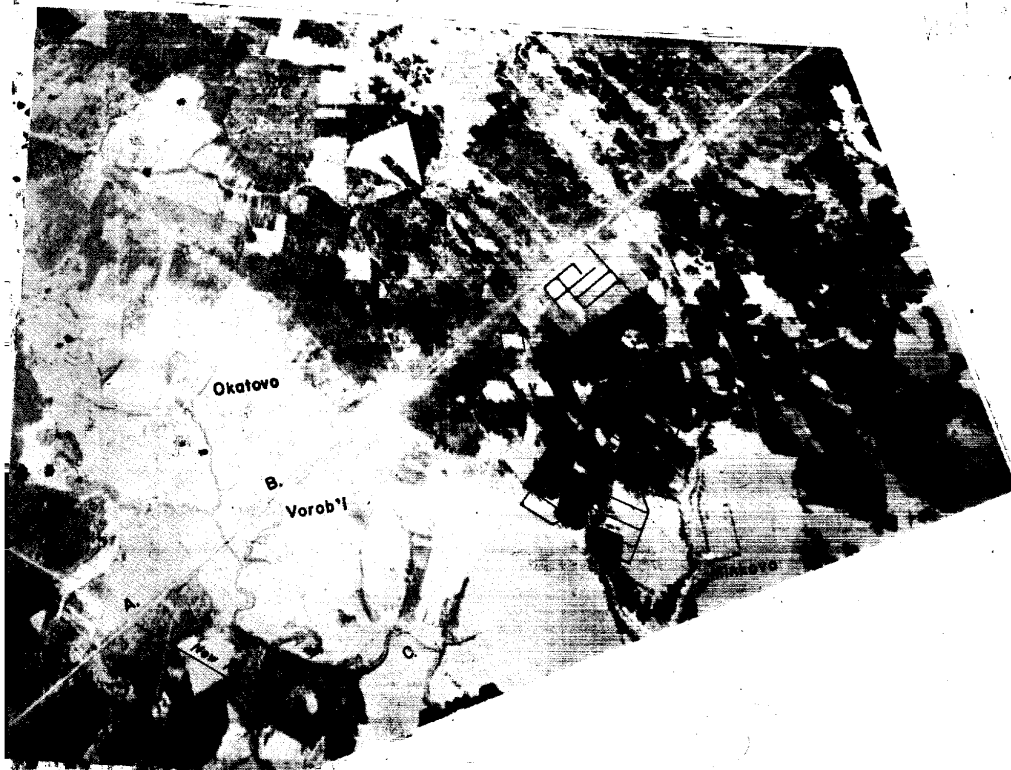
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Site No. 7



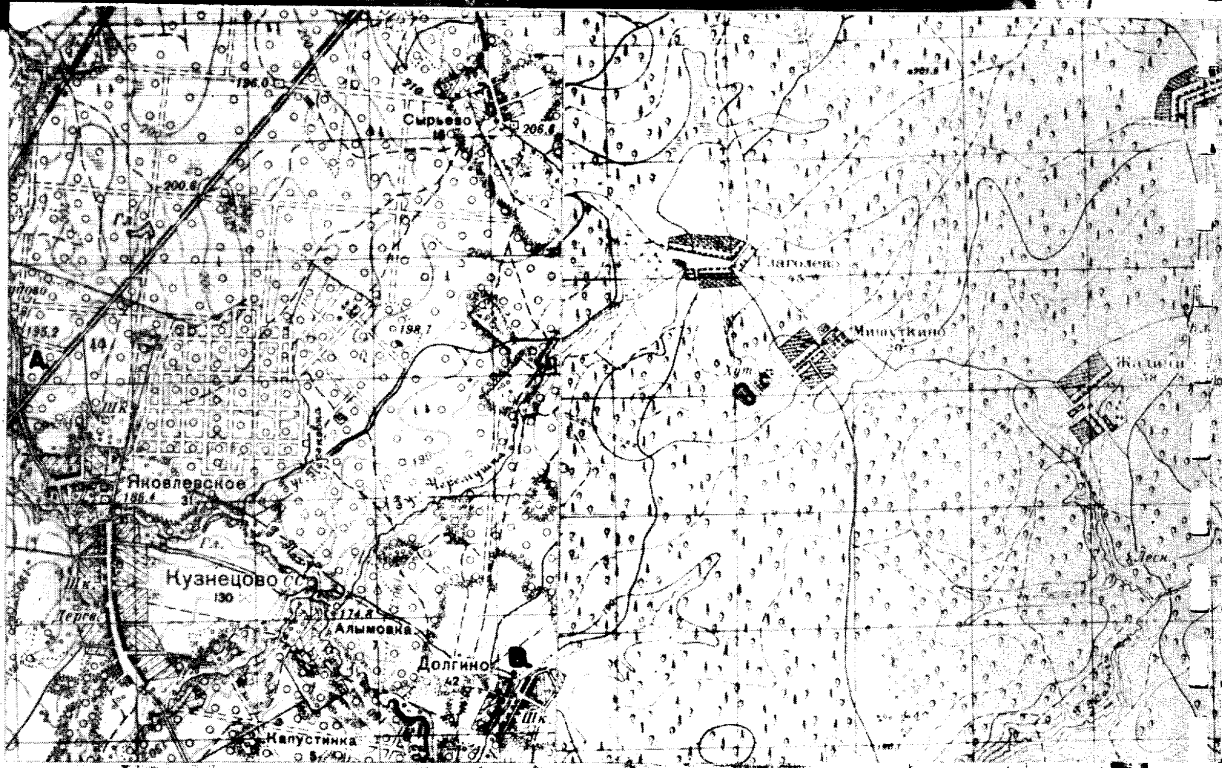
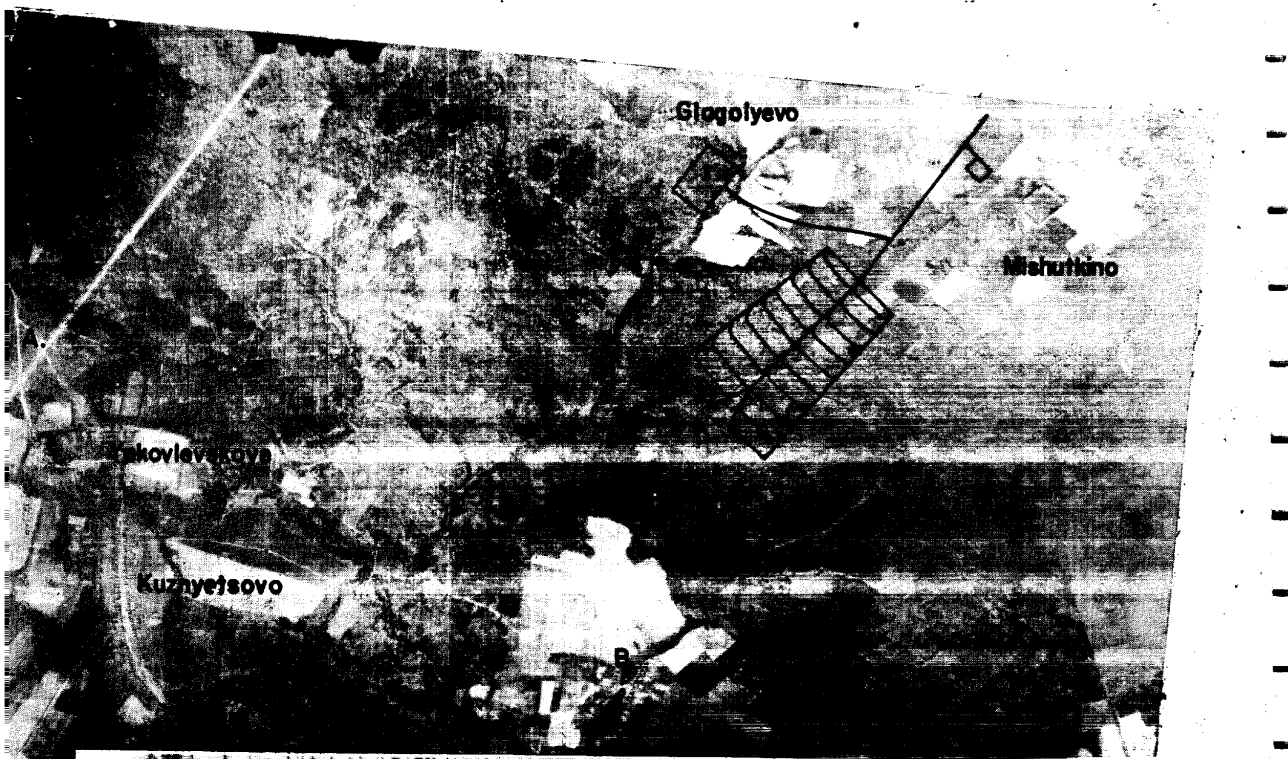
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Site No. 8



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Site No. 8 is on the inner ring, near the small village of Mishutkino, in a flat, wooded area. The layout is standard. The small oblique photography does not permit detailed analysis of the site.

SITE NO. 8

LOCATION : 49 km. southwest of Moscow

AZIMUTH : 

COORDINATES: 55.27.50N, 37.02E

MAP DATA : N-37-15C&D



Site No. 14 is shown on the following two pages, together with a complex to the north which is believed to be a missile assembly facility.

The photography of Site No. 14 shows only the herringbone array. As can be seen in Figure 9, it is mostly in a wooded area, in low, flat terrain.

It will be noted that the spot picked as the probable location of the "Yo-Yo" is very close to an area that has been cleared for years, and it is possible that the "Yo-Yo" is actually in that cleared spot. The orientation of the launching area, as shown, may be slightly in error since the photo was oblique and hazy.

SITE NO. 14

LOCATION : 46.5 km. southwest of Moscow

AZIMUTH : 

COORDINATES: 55.48.55N, 36.52.45E

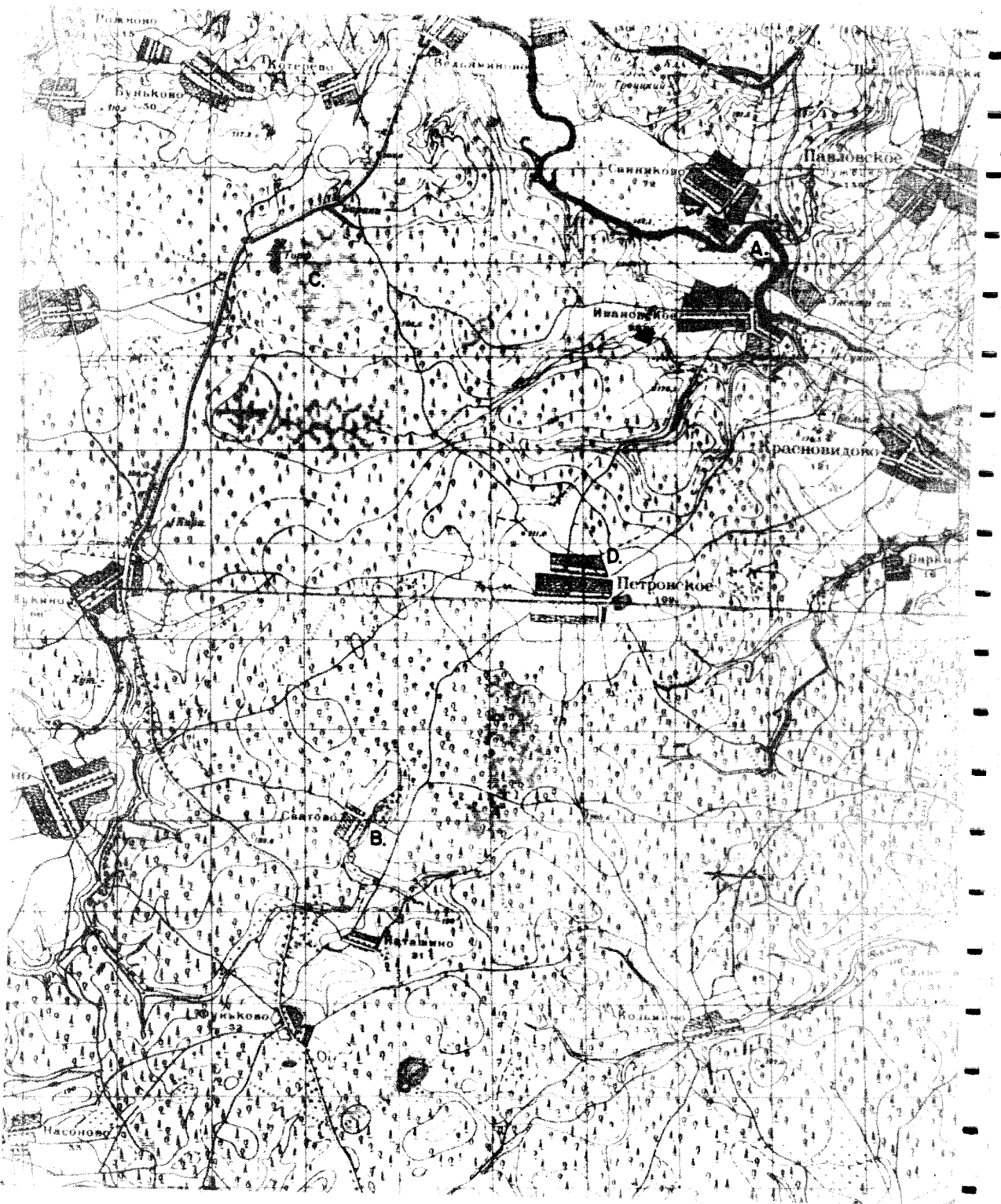
MAP DATA : N-37-2A&B
N-37-2C&D

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III. PROBABLE MISSILE ASSEMBLY FACILITY

A probable missile assembly facility is located at 55.51.30N, 36.52.05E directly north of Site No. 14 on the inner ring. The overall area occupied by the site measure approximately 3800 by 4300 feet. Buildings within the facility contain more than 850,000 square feet of floor space.*

Only three photos of this particular facility are available. All three are oblique photos of rather poor quality. Images of buildings, rail lines, missile-like objects, etc. are blurred and difficult to interpret.

Other than for building 6, a power plant, and building 7, fuel storage shed (probably peat), it is difficult from the photography available to make a functional analysis. However, it is suggested that the open area around building 14 may be for initial off-loading of supplies; that buildings 23, 31, 43, and 53 may be for primary assembly (possibly fabrication); that buildings 25, 30, 32 and 38 may serve for final assembly; that buildings 47, 48, 51, 52, 55, 56, 57, and 58 may serve for component testing; and that the four areas along the south end of the facility could be test stands.

Launching areas relatively close by could be served by motor transport, whereas more distant launching sites would be served by rail, with the double or triple rail spurs of the facility used for rail loading.

The absence of missile handling equipment (e.g. cranes) is noteworthy. Also of note, buildings 28, 34, 47, 49, 50, 52, 55, and 56 appear to be revetted.

Missile-like objects are stored horizontally in areas adjacent to buildings 53, 9, 25, 30, 32, and 38. Some of these objects measure [REDACTED] and appear to have fins at the rear. They may also have small fins forward, but the poor photography precludes any degree of certainty.

25X1D

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* See Table No. 1, "Building Data," for breakdown of floor space in square feet.

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TABLE NO. 1

2014 (493-494)

BUILDING NO.	BUILDING DATA	AREA IN SQUARE FEET	TALENT
421.		2,000	
412.*		51,000	
403.*		10,600	- 8,800
394.		35,475	
385.		2,650	
366.		17,600	
7.		32,400	
358.		4,400	
319.		5,950	
3210.		1,750	
3311.		5,400	
3412.		5,950	
13.		13,875	
714.		2,100	
15.		1,800	
16.		625	
17.		500	
18.		900	
19.		1,800	
20.		1,800	
821.		15,000	
922.		15,000	
623.		70,525	- 51,810
24.		2,475	
25.		38,000	
4326.		7,200	
27.		1,250	
28.		1,200	
1429.		7,200	
1830.		38,000	
131.		70,525	- 51,810
4732.		38,000	
33.		1,750	
34.*		3,200	
35.		1,750	
36.		2,250	
37.		700	
1738.		38,000	
39.		1,925	
1040.		10,075	
241.		70,525	- 51,810
42.		600	
343.		70,525	- 51,810
1144.		10,075	
445.		70,525	- 51,810
5446.		450	
47.		8,400	- 11,900
5348.		7,475	- 7,400
2549.		2,000	
2350.		2,000	
2251.		7,475	- 7,400
2052.		8,400	- 11,900
553.		70,525	- 51,810
6054.		450	
55.		8,400	- 11,900
2156.		8,400	- 11,900
5857.		10,300	
3558.		10,300	

25X10

(40040)

The dimensions of buildings 57-62 could not be determined.

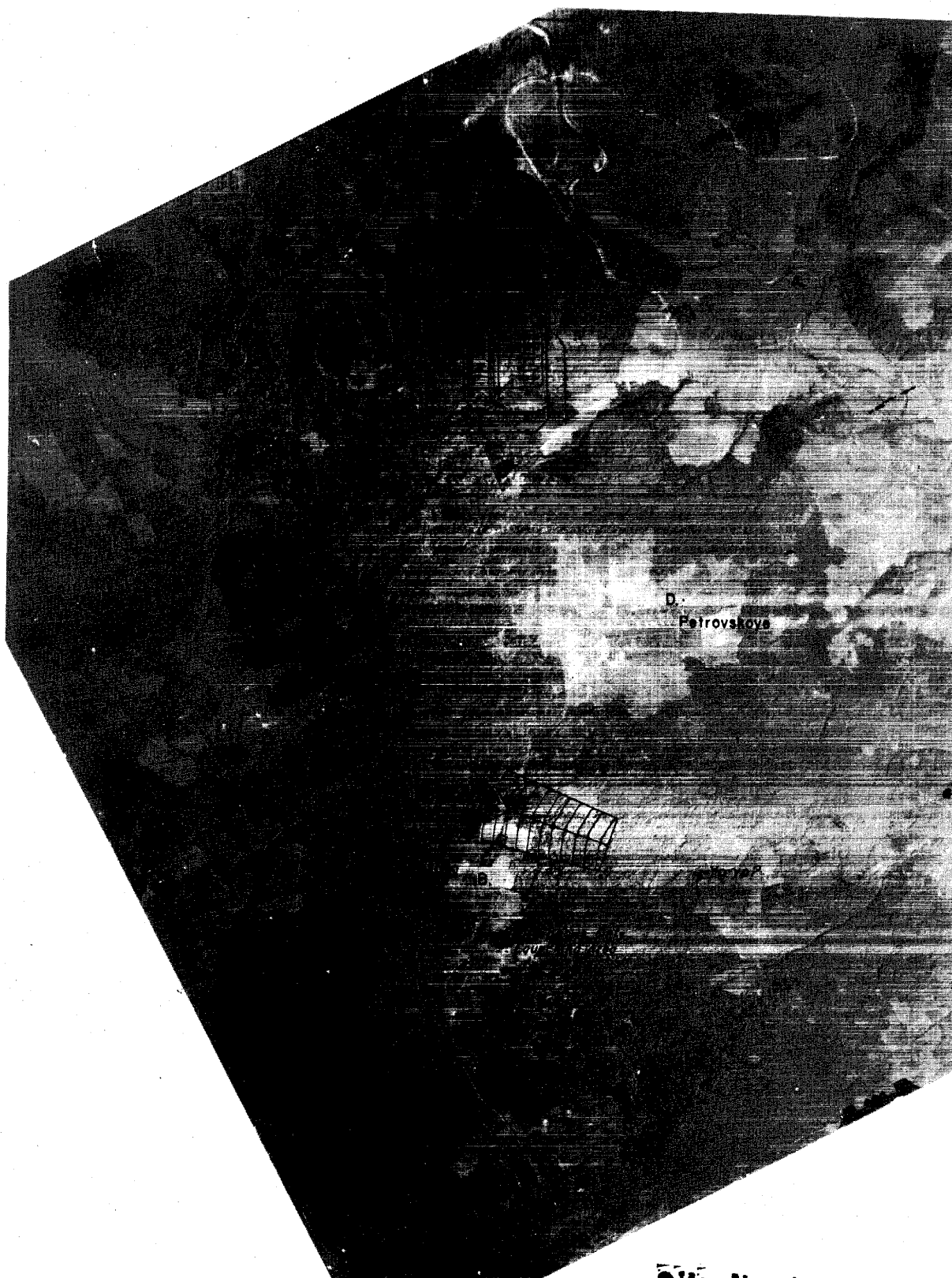
APPROXIMATE TOTAL AREA OF BUILDINGS 1 THROUGH 56.....870,000

* Probable two-story buildings.

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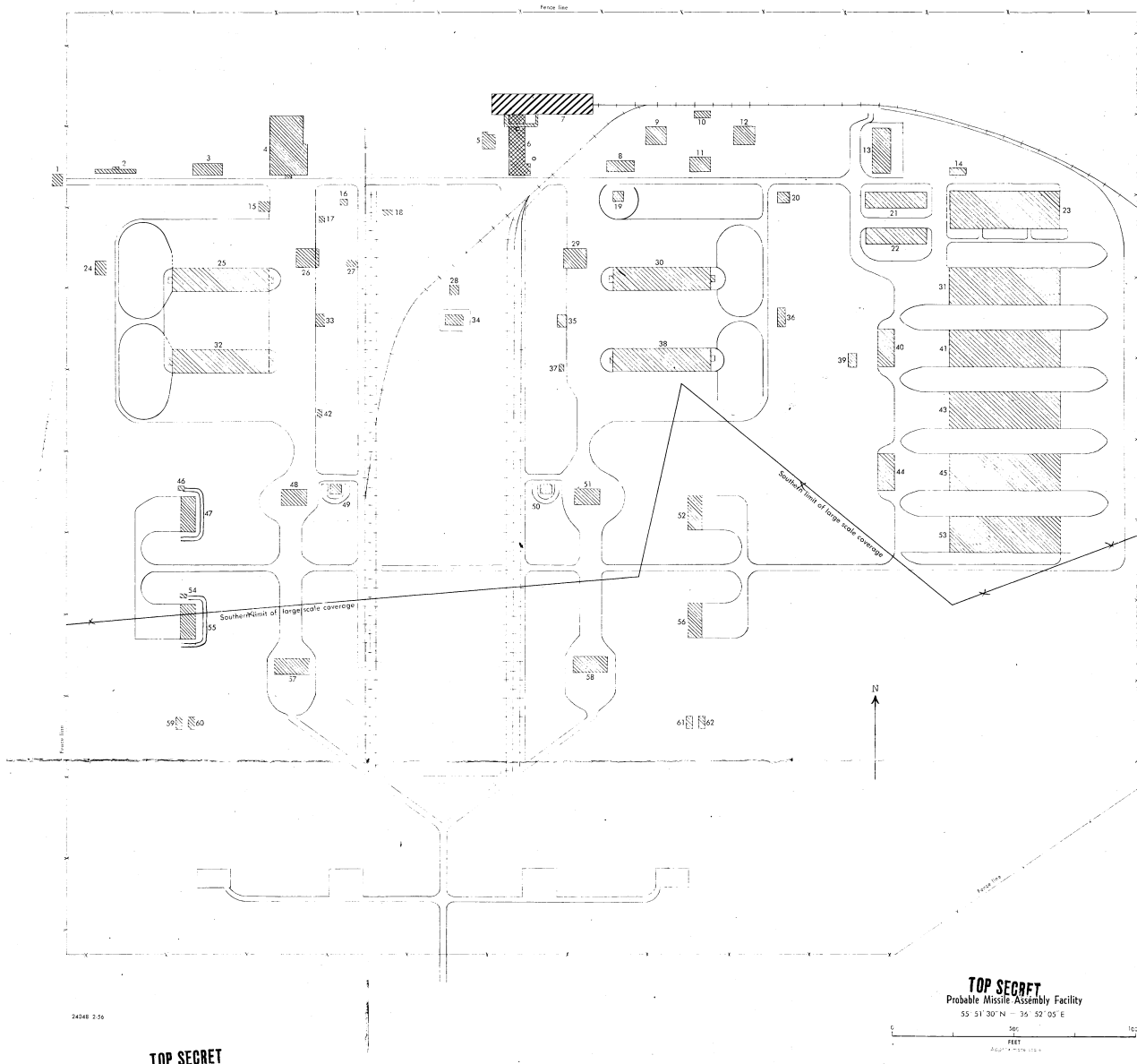
Site No. 14

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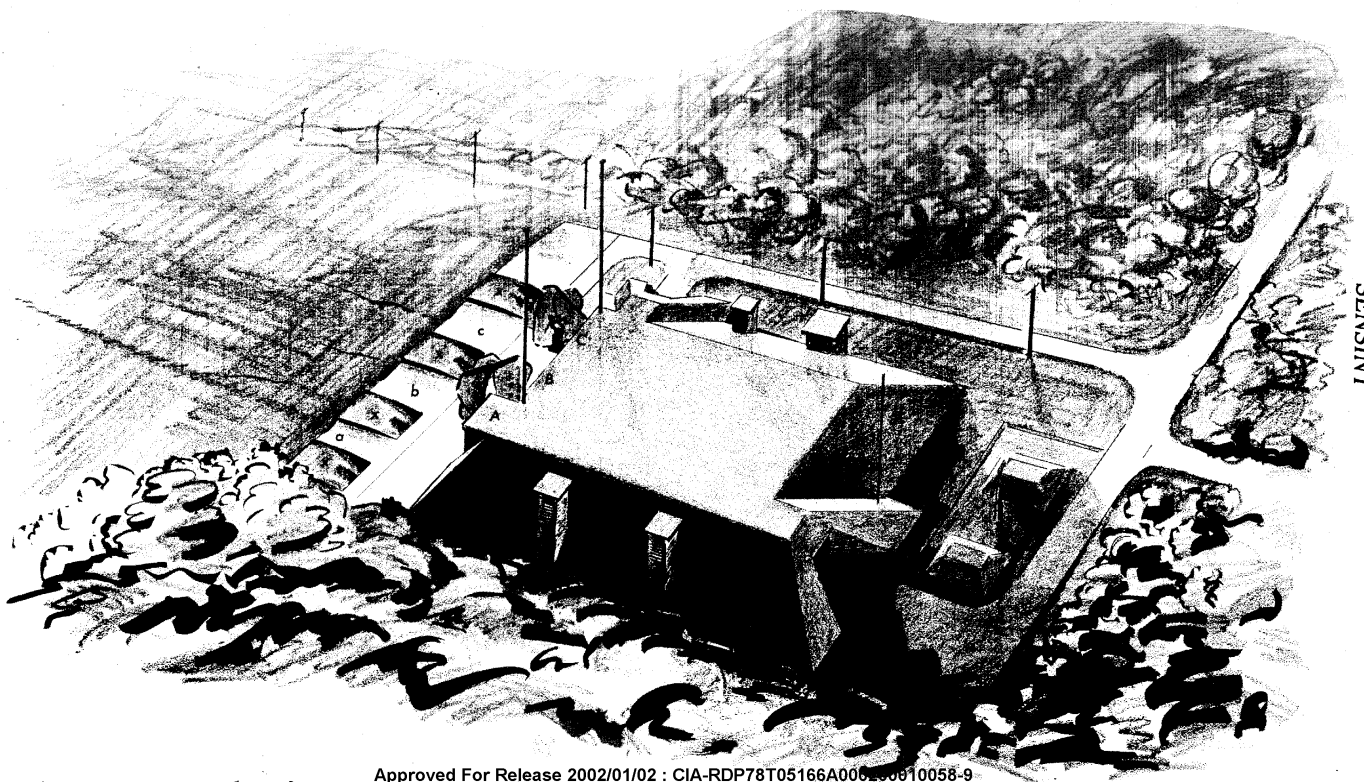
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YO-YO BUNKER



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IV. THE "YO-YO" BUNKER

The illustration (opposite page) was drawn from complete stereo cover of a "Yo-Yo" bunker. For the first time some details of all four sides of the bunker can be seen. Of particular importance is the evidence that a third piece of equipment (electronic?), other than the two "Yo-Yo" equipments, may exist. Contrary to statements in the first report, the two "Yo-Yo's" are not centered in the bunker. The two "Yo-Yo's" occupy about three-fourths of the front of the bunker, leaving space for another installation (A), evidenced by the rectangular extension of the bunker roof.** It should be noted also that item "a" appears to be a paved area directly in front of "A"; "b" directly in front of "B"; and "c" in front of "C." Of the three "a" is the narrowest, with "b" and "c" being equal in size.

The items marked "x" appear to be unpaved areas, with the end of each, on the bunker side, recessed into the ground. *On Site 5, 11-11-55*

Three stick masts protrude from the bunker, two on the front near "B" and "C", and one by the rear entrance. Ground photography of Site No. 9 reveals whip antennae on top of the two masts at the front of the bunker. The other mast is not shown in those photos.

BUNKER DIMENSIONS

<u>Previously Reported</u>		<u>Current Photos</u>
Width at Base	(200')**	135'
Length at Base	(200')**	180'
Width at Top		85'
Length at Top		130'
Angle of Side Slope	(40')**	
Height	(20')**	20'
Width Concrete Apron		60'
Width of A		20'
Width of B-C		60'

25X1D

* CIA/RR PL-1, October 1955, (SENSINT, TOP SECRET)

** Numbers in parenthesis refer to the measurements as originally published, based on photography available at that time.

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